Procter Jr W

VALEDICTORY ADDRESS

TO THE

GRADUATES

OF THE

PHILADELPHIA COLLEGE OF PHARMACY,

Delivered in Sansom Street Hall, March 18, 1852.

BY

WILLIAM PROCTER, JR.

WITH A LIST OF THE GRADUATES.

PUBLISHED BY THE GRADUATING CLASS.

PHILADELPHIA:
MERRIHEW AND THOMPSON, PRINTERS,
No. 7 Carter's Alley.
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CORRESPONDENCE.

PHILADELPHIA, March 20th, 1852.

Dear Sir :—The Graduating Class of the past session, believing that the publication of the chaste, beautiful, and impressive Address delivered by you at the late Annual Commencement of the Philadelphia College of Pharmacy, would redound to the credit of that Institution, and at the same time give them an opportunity to testify their feelings of esteem and regard for you personally, have appointed the undersigned a Committee to solicit a copy for that purpose.

The Committee also take great pleasure in expressing, on behalf of the Class, and for themselves individually, grateful remembrance of the able, faithful and courteous manner with which you fulfilled your duties towards them, during the past Course.

Very Respectfully,

GEO. M. GORMLY, Va.
ALFRED JONES, Pa.
J. H. M. MORRIS, Ky.
DAVID F. BURTON, Del.

WM. PROCTER, Jr. Esq., Professor of Pharmacy in the Philada. College of Pharmacy.

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PHILADELPHIA, March 20th, 1852.

GENTLEMEN:—

The pleasure with which your request, on behalf of the Graduating Class, that a copy of the Valedictory Address delivered on the 18th inst., be placed in their hands for publication, is acceded to, is much enhanced by the very gratifying language in which the Committee have couched the application.

To the Class, you will be pleased to express my kindest wishes for their future ; and for yourselves gentlemen, individually, accept the assurance of my warmest regard.

WILLIAM PROCTER, JR.

To Messrs. GEO. M. GORMLY,
ALFRED JONES,
J. H. M. MORRIS,
DAVID F. BURTON.
} Committee.

ADDRESS.

Gentlemen, Graduates :—

In accordance with usual custom, we have met, this evening, to sever the ties which have heretofore bound you to our Institution, in this public manner, that many witnesses may be had to the honorable termination of the course of studies and practice by which you have merited the diploma just conferred. Commencing business in youth, and pursuing its details in your progress to manhood, you have, I trust, engrafted its numerous requirements of skill, memory, and judgment completely on your habits; and now, bearing with you the certificate of your *Alma Mater*, you are about to embark your fortunes on the uncertain sea of the future, and, by the right which education and talents invest you, claim a propitious and successful voyage.

Before unmooring your vessels, and spreading their canvass, permit me, gentlemen, as the appointed organ of our Institution, to tender to you, on this farewell occasion, some words of counsel regarding your future stepping, and the motives which should guide you in the pursuit of your calling.

An important element of success in professional life is a deeply grounded respect for its object, an ever present consciousness of its usefulness to society, and of the respectability accruing to its votaries, from an adherence to the line of duty. I hope in choosing Pharmacy as your business, you have acted in obedience to this view, as well as to its affording you competence and power. Let nothing deprive you of this regard for your profession; it

will protect you against temptation to sully its honor, by a resort to practices, in the pursuit of wealth, incompatible with its dignity and character. There is a praiseworthy nobility in the conduct of young men, setting out in life, who adopt a correct code of professional ethics, and adhere to it through the dark days of discouragement that too often mark the early career of the Apothecary. Be firm, be prudent, be patient, be economical, and be enterprising; but let not anxiety for riches induce you to enter any coalition with the unprincipled. Ever bear in mind that your success depends on the constant and perfect fulfilment of those duties to the public, by which your professional character shall stand unimpeachable. I need not tell you how slight a cause will threaten it—perhaps ruin it—and with it your future prospects in life. Let your daily practice, therefore, convince the people that you *are* masters of your Art, in all its details, and that you are also *gentlemen*, far above the low arts and trickery of the charlatan.

When the vital importance of Pharmacy to the community is considered, it is surprising what a small degree of interest is manifested regarding the qualifications of its practitioners. This apathy arises more, perhaps, from ignorance, or thoughtlessness, of the deep responsibility and power for good or evil reposed in the Apothecary, than from wilful indifference; for when accidents do happen, carrying sorrow into the bosom of families, the public mind is aroused, suspicion seizes upon it, and the whole pharmaceutical profession suffers for the misdeeds of its least worthy members. This is wrong. In most of the countries of Europe the governments, by a wholesome interference, encourage the education of Apothecaries, control excessive competition by apportioning them to the population, and enforce strict accountability to the legal regulations. The preparation and dispensing of medicines for the sick is viewed as too closely connected with the public welfare, to be left to regulate itself as is the case in the United States. So decided an interference would hardly be tolerated in this country, but a medium course—rendering education obligatory, and an annual inspection of the stock of our shops necessary, would, in connection with an enlightened public opinion, and a salutary law in reference to Empyricism, work the needed reform.

As a preliminary step, therefore, the public should be made aware of the nature of the services rendered by the Apothecary. These services are based on two classes of duties; those which are preparative or educational, and those which are executive in their nature. Every individual who puts up the sign of the Apothecary, by implication declares, that having qualified himself for dispensing drugs and medicines, he invites the people to patronize him. I need not tell *you*, gentlemen, that a qualification for dispensing drugs and medicines, involves an acquaintance with the physical and chemical properties of hundreds of substances, derived from animate and inanimate nature; that the sciences are called into requisition as the expounders of the characters of these productions, and of the very numerous compounds resulting from their chemical union; a knowledge of which is necessary to prevent fraud and imposition. Nor is this all. The medicinal qualities of each substance, its dose and relative position in the scale of activity, must be familiar, to guide the judgment in dispensing prescriptions, that the inadvertent errors of physicians may be detected and corrected. To attain all this knowledge, and to acquire the skill necessary to comply with the duties of the public service, is no small labor; nor is it appreciated by the people, who are too apt to view the pharmaceutist merely as a merchant or shopkeeper, one who weighs, and mixes, and sells, and who wishes to throw around his business operations an air of mystery and undeserved importance, that he may exact exhorbitant prices. However true this may be of the empyrical pretender, it has no application to the true apothecary. No stinted recompense should repay the man who serves the public as he does—at no hour is he excused—to meet the untimely calls of the sufferer he must ever be ready; like the warrior he must sleep beside his arms, to meet the night attacks of the enemy; and, relying solely on his knowledge and skill, in these emergencies, he must decide without hesitation, and act without delay.

Gentlemen, the responsibilities of your calling, as they have been impressed during your probationary studies and practice, will be seriously augmented when you attain a position among the established practitioners of Pharmacy; when *you* personally, in

your proper names, assume the duties I have faintly shadowed out. That you will prove true to your profession—that you will ably meet all the demands on your knowledge, skill and integrity, and feel a just self-respect, from a sense of usefulness to the community in which you may be established, I will not doubt.

A feeling of self-gratulation is a very natural accompaniment of a season like the present, devoted as it is to the public acknowledgment of accomplished labor; and if ever excusable, it is on such an occasion:—yet, while indulging in a rational satisfaction, I trust you will admit that the period for study has not passed; indeed, that it has just commenced. Your efforts have heretofore been preparatory—you have been disciplining your mental and physical powers—you have been manœuvring your vessels in sight of well-known coasts, and studying out the charts of your future voyage. Whether you will keep within the contracted waters of your present attainments, or whether, directing your barks toward the unknown regions of knowledge and art, you will bravely venture, and boldly grasp at truth in her various manifestations—and, laden with the precious treasures she will surrender, you will return safely to port—remains for you to determine. Unaided, save by the few records of those who have preceded, you will have to pilot your own vessels, and by the lead-line of analysis, and the object glass of observation and reason, unfold the hidden and obscure, and deduce from them results that will prove useful to society or advantageous to science.

To really add something new to the accumulated stores of past investigation is no easy task, unless it be accidental; even to decide a phenomenon, or a substance to be new, involves a serious amount of study; and many elaborate and interesting investigations have been met, at their conclusion, by the humiliating discovery that they have already been recorded. Such disappointments are not without their uses; they check the too frequent egotism of incipient inquirers, and lead to more thorough investigation as the basis of future essays.

In thus advising the pursuit of knowledge, do not fancy I have overlooked the useful, but more humble practical duties of the profession; far be it from me to give a false idea of the occupa-

tion you have adopted. The details of the shop, as connected with the public service, constitute the primary engagement of the Apothecary, to which all others must give place. The responsibilities involved are too serious to give them a secondary position in his daily routine; and, except where he can afford to consign a portion of them to qualified assistants, he is not justified in giving any considerable share of his attention to scientific objects.

The every day pursuits of the pharmaceutist are, however, constantly eliciting new facts, and suggesting trains of reasoning productive of new ideas, when followed with open eyes and awakened attention; and almost any one may find sufficient leisure to digest these, and derive from them hints useful to the profession. The cultivation of such habits of observation and deduction, gradually develops the skill and accuracy which should mark those who attain to a respectable standing among the votaries of science. What an encouragement it should be to those of you, gentlemen, who have laudible aspirations after such a position, to look back among the earnest laborers, whose names have been indelibly inscribed on the columns of the temple of knowledge, and witness how fair a proportion have begun their lives as apothecaries' boys! Scheele and Bergman of Sweden, Davy and Dalton of England, Liebig and Trommsdorf of Germany, Vauquelin and Robiquet of France, are a few of that brilliant galaxy of intellects, whose origin was common with yours. Succeed in your business—be thorough masters of it—and then, if your taste inclines, and your talents fit you for scientific pursuits follow them—not for mere fame, above all, not for a mere temporary reputation, which too often administers to an egotism itself has engendered; but let the motive be the intrinsic pleasure which you derive from them, and the usefulness your labors contribute to abstract science, and the practical interests of man.

Gentlemen, I have alluded to the importance of a due respect for your calling, to the high principles which should govern you in carrying out its requirements, to the necessity of steady perseverance to overcome the incipient difficulties of a beginning, to the field which opens to you for the prosecution of study and research in the sciences, and to the great men of the past and present, who

have built up *world-wide* reputations, upon bases not more promising than those upon which you stand. Let us now take a hasty glance at the past progress, and present condition of Pharmacy in other countries, and then, profiting by the ideas we may glean, ascertain what position *we* occupy in the scale of advancement, and what suggestions can be applied to improve the condition of our art in the United States.

Pharmacy, in its simplest definition, is the art of preparing medicines from the crude materials furnished by nature; hence, it must date from the period when primeval man sought, among the plants which grew around him, for means to ameliorate his bodily suffering, whether of disease or accident. Providence has provided, in the vegetable kingdom, a multiplicity of substances adapted to remedial application, and man in his yet uncivilized condition, has, perhaps profiting by the teaching of brutal instinct, or by his own crude experimental trials, ascertained partially their virtues. What is true of uncivilized man *now*, must apply to our earliest ancestors, who, whatever may have been their dispositions and capacity, had, equally with the present aborigine, to learn by experience and suffering. The progress of the child to manhood is a true figure of the progress of nations, the one, as the other, have to advance step by step in the acquisition of knowledge, and the skill for applying it.

The earliest records of the past allude but obscurely to the condition of the healing art, yet sufficient is expressed to indicate the earnest consideration it had claimed. According to early Egyptian and Assyrian, as well as to Hindoo and Chinese history, its votaries were respected; and so important was their office esteemed by the primitive Greeks, that the ministry of religion and of medicine were united in the same individuals. In the palmy days of Jewish dominion the apothecary was known as such, and, although no minute account has come down to us of the details of his practice, the far spreading commerce of Judea, during the reigns of David and Solomon, must have placed at his disposal numerous of those precious East Indian productions, which, to this day, hold an important place in the traffic of the Orientals. In cotemporary Egypt and Assyria, whose civilization was ancient

in the days of the prophets, as attested by their own rock-written annals, the advancement of our art was not inconsiderable; but the want of inductive philosophy on the one hand, and ignorance of chemical and microscopical analysis on the other, in every era of more ancient civilization, threw an occult veil over medicine and pharmacy.* The same mystery which engendered an undue and superstitious regard for the assumed supernatural powers of the priest, served equally as well on the banks of the Nile and Euphrates, as in the temple of Epidaurus, to hide from the pilgrims to the shrine of Æsculapius, the real ignorance and deception of its priestly physicians.

It was in the brightest days of Greece, during the age of Pericles and Socrates, that physic first assumed a degree of order and perfection, approaching a regular system, under the teaching of the Physician of Cos. When we contemplate the early history of medicine, Hippocrates looms up in isolated greatness, as the brightest star in its galaxy, absorbing all cotemporaneous lights in the brilliancy of his reputation. It is not probable that he originated all the suggestions his writings offer, but he was one of those men, of a period, who seize on the crude facts and unconnected observations of others—marshal them into an effective and luminous order—and deduce from them results useful to their fellow-men. Hippocrates was a believer in the theory of Empedocles, and he based his practice on observation of the phenomena of life and the effects of medicines. His materia medica, chiefly vegetable, embraced more than 300 articles, among which were a majority of the most esteemed remedies of European and Western Asiatic origin, now in use. His therapeutics were simple, and his treatment included many dietetic and hygienic rules. Hippocrates was his own apothecary; his forms of associating and preparing drugs remained the model of his successors to the time of Galen, and, modified by him

* The historical statements and facts contained in this Lecture are derived chiefly from M. Cap's essays on the history of Ancient Pharmacy, in the Journ. de Pharm.; Eschenburg's Manual of Class. Lit., Paris's Pharm.; Thompson's Hist. Chem.; Herodotus, and the various essays on the condition of Pharmacy in other countries, published in the London Pharmaceutical Journal.

and the Arabians, have descended to the present day—hence, the father of Physic claims equally *our* regard as the parent of systematic Pharmacy.

In the hands of Aristotle and his successors, the accumulated stores of Egyptian, Assyrian, and perhaps Indian lore, opened to consultation by the conquests and liberality of Alexander, afforded vast materials for investigation; and undoubtedly the disciples of Hippocrates must have profited by the opportunity. The impulse given to knowledge in the Ptolemaic period, may be looked upon as partially the result of that tremendous disruption of time-honored customs, and exclusive privileges, which had tended to prevent its spread in the conquered countries, and to confine its cultivation to Chaldæan magii and Egyptian priests. What those vast literary accumulations at Pergamus and Alexandria, drawn together by the patronage and rivalry of the successors of the conqueror, really were; what amount of knowledge they embodied, or what would have been their influence on our present literature and science, had they escaped the accidental flames of Cæsar, the incendiarism of Theodosius instigated by Christian zeal, and the finishing stroke of Arabian bigotry, it is impossible now to determine; but the intense activity of the scholiasts of Alexandria testify to the innumerable themes which arose out of, and perhaps returned to those collections in new forms. The Museum which the first of the Ptolemies founded and enriched with numerous natural and artificial productions of the then known world, doubtless contained much that modern learning and travel have had to re-discover and re-investigate, and perhaps some not now known, that owed its origin to the ancients.

The dogmatical schoolmen of Alexandria were too much given to arguments based on hypothesis, and too little disposed to analyse and investigate the language of nature, written with imperishable characters in her great volume of physical and organic laws, to extract from these collections the truths of science; yet under the physicians of that sect, Pharmacy acquired a distinct meaning as a branch of medical knowledge, and was prosecuted by the great and the learned to a degree not before known among the

Greeks. Besides the *herbarii* and *rhizotomes* who gathered and sold herbs and roots, there were the *seplasiarii* or dealers in crude drugs, who, according to Pliny, were addicted to sophisticating, like some of their brethren of the present day, whilst pharmacy proper, was in the hands of the *pharmaceutæ*, and *sellularii*, who were analogous to the present apothecaries of England, and kept open stores. Of the Alexandrians, Erasistratus the grandson of Aristotle, and Herophilus of Chalcedon, did much for our art, and Mantias, a pupil of the latter, wrote a treatise on practical pharmacy, quoted by Galen.

The Empirical School which succeeded that of the Egyptian Capital, arose among the disciples of Herophilus. Abandoning the dogmatism of their predecessors, they rejected all hypotheses and search after the hidden causes of disease, and advocated an exclusive reliance on experience as the basis of practice; whilst drugs were re-studied in reference to their effects on the human system. This doctrine directed attention towards, and was fruitful in developing the powers of medicines; but unfortunately for the progress of the Empirics, the fallacious idea of associating numerous substances in a single preparation, with the view of meeting a variety of symptoms, originated with them, and its excess soon led to those absurd and preposterous compositions, the preparation of which, from the number of ingredients that entered them, was called *poly-pharmacy*.

This school was noted for its regal patrons:—Antiochus Philometor, Nicomedes King of Bythinia, the Queens Cleopatra and Artemisia, and Kings Attalus and Mithridates, not only cultivated medical knowledge, but invented and compounded medicines themselves, to which they did not scruple to give their names. Of these pharmaceutic sovereigns, Mithridates the King of Pontus, was the most celebrated. After a long and successful resistance to Roman inroads, he was defeated by Pompey, whose first care on the death of his rival, was to seek among his papers for the recipe of the electuary which he was celebrated for preparing, and, on his return to Rome, brought the translation as one of the trophies of his victory. This compound contained fifty-four in-

gredients, and is now remarkable as the most ancient relict of polypharmacy that has outlived the past.

The comparative calm which for two centuries followed the Macedonian conquest, and during which we have seen that medicine, in common with other learning, had been extensively cultivated in Asia Minor, Egypt and Greece, was again disturbed by the ambition of the Romans. Their conquest of Southern Italy and Sicily brought them in contact with the colonial Greeks, gave them a foretaste of refinement and art, and turned their avaricious longing toward the land of Demosthenes, which needed but a pretext to be gratified. Corinth fell a prey to the flames of Mummius, and Greece became a Roman province. Their armies gradually overran the East, prostrated the governments which had so long fostered philosophy and science, and left their votaries to seek out among the wrecked remains, other asylums for shelter.

It was not till the empire had been extended to nearly its utmost eastern limits, and the war-spirit was partially satiated by success, that the masters of the world found time or inclination for science and the arts. By their excursions to the East they became aware how incomparably superior were the Greeks in the refinements and elegance arising from a cultivated taste, and how rude was their domestic life compared with the luxurious magnificence of the Asiatics; and they were not slow in imitating the latter, and in availing themselves, by a liberal patronage, of the genius and talent of the former.

The world is the country of savans! Science is their creed—the pursuit of knowledge their object in life! It matters little to them whether it be Athens, or Alexandria, or Rome; wherever the encouraging and protecting arms of the mighty afford an arena for their peaceful pursuits, there will they centre. Is it any marvel then that the physicians, the philosophers, and the artists of the East; after their sanctuaries of learning had been invaded by foreign and civil war, their precious collections carried off to Rome, or destroyed by the unsparing soldier, and the power of their patrons annulled, or centered in unsympathising proconsuls; should have flocked to the unlettered mistress of the

world, and have created a halo of intellectual glory around the era of Augustus ?

Of all the sciences, medicine was the most distasteful to the Romans. In their earlier days, superstition prevailed in regard to diseases, and the augurs and aruspices were also their physicians, but with the progress of knowledge, they lost faith in the pretensions of the priesthood, and placed their dependence on Greek slaves and freedmen, who had brought with them from Attica some knowledge of the healing art.

Even to the time of Pliny, in the sixtieth year of our era, medicine was almost entirely in the hands of Greek physicians, who, since the fall of Corinth, had gradually emigrated to Italy, where their services were demanded by the train of diseases that luxury had engendered. The standing of physicians gradually arose as their assistance became indispensable, until in the reign of Augustus they were placed on a par with philosophers and rhetoricians. Asclepiades, of Bythinia, gained great celebrity, and Themison of Laodicea, at a later period, founded the Roman or *methodical* school of medicine. Cato was the first Roman writer on physic ; but Cornelius Celsus, a native of Verona, in the first century, wrote the most esteemed work of Roman origin now extant. The methodical school taught that ill health arises from either excessive *striction* or relaxation of the organism or its parts, and their treatment and remedies were intended to relax or give tone to the parts or general system.

Poetry, from the earliest times, had been chosen as a medium for portraying the exploits of the warrior, the virtues of the sage, and the wonders of the superstitious, but it was reserved for the age of the Cesars to employ it as the language of medicine. The physician of Nero wrote the formula for his celebrated electuary in verses, and it yet exists under the name of the Theriaca of Andromachus. Pedanius Dioscorides, a physician of the empyrical school, and a native of Cicilia, flourished in the first century, and left a work on medical botany, long the oracle of succeeding writers.

In the following century arose one of those remarkable men, who, at wide distances in the progress of society, leave a lasting

impress on human institutions. Claudius Galenus, (or Galen as he is now called,) born at Pergamus in Asia Minor, in the one hundred and thirty-first year of the Christian Era, was the son of a wealthy architect and senator, who, influenced by a dream, gave his son's education a medical direction. Animated by an intense desire for knowledge, the young Galen early left his natal city, and studied successively at Smyrna, Corinth, and Alexandria; which yet, despite the Romans, had much to attract the learned. Here materia medica especially engaged his attention, and doubtless, he availed himself of the treasures of the Serapæum, which had been enriched by Antony's gift to Cleopatra, of the literary spoils of Pergamus.

In this way, and by extensive travel and observation, he laid the foundation for a wide reputation, and acquired the materials for the composition of the numerous treatises on various medical subjects, which he afterwards wrote, eighty-two of which are yet extant. Galen resided at Rome in the age of the Antonines, the brightest period of the empire for the culture of the peaceful arts, and died at the age of 70 years. In his notions of scientific order, in his enthusiasm in research, in the ability he displayed in freeing himself from the sectarian restraints of the schools, and in culling over and arranging the discoveries of Hippocrates and other observers who flourished during six hundred years of Græco-Roman civilization, he exhibited evidence of great genius and power; but on the other hand, Galen was superstitious, and believed in dreams and divination. He worshipped Æsculapius as the god of his country, and attributed to *his* inspiration the successful adaptation of certain remedies. Besides, "he was sufficiently vain to have said that Hippocrates pointed out the true route of medical observation, yet to himself was due the merit of levelling its difficulties, even as Trajan had rendered practicable the old roads of the empire."

Galen was the author of a theory of medicine, which he defended with much ingenuity, and which, like the doctrines of Aristotle in philosophy, continued the touchstone of medical theorists for more than thirteen centuries. Adopting, like Hippocrates, the theory of Empedocles, that the ultimate elements of

all bodies are *air*, *earth*, *fire* and *water*, the qualities of which are dryness, moisture, cold and heat, he recognized these qualities in medicines in several degrees, and believed them to exercise an influence on the parts of the organism, according to the relation which existed between the composition of the one and the qualities of the other. So long as the elementary equilibrium of the organism continued, and its temperature was natural, its functions were healthy, but when that status was disturbed, irregular action followed, and it became the duty of the physician to decide which of the elements were deficient, or in excess, and apply the remedy that theory indicated.

Galen divided the materia medica into specifics, poisons, and antidotes. His pharmacy embraced nearly all the *classes* of mixed medicines employed by Hippocrates and his successors, and which are known to this day by the term "Galenical," yet he infused into the heterogeneous mass an approach to scientific order, and relieved it of much of the absurdity derived from the Empyrical school. All those numerous processes involving chemical reaction, which now constitute the chief volume of our art, were then unknown. The shop of Galen was located in a conspicuous position on the *Via Sacra* at Rome, where it continued till the reign of Commodus, when it fell a prey to the fire of an incendiary. The pharmaceutical rules which he there put in practice, continued to govern pharmaceutists while the empire lasted, and, transplanted to Constantinople, they continued to its downfall, a monument to his memory, and have not yet been obliterated by the Ottoman conquerers.

When the whirlwind of Germanic barbarians burst over the Western Empire, pharmacy and medicine shared the fate of literature, science, and the arts, and were either extinguished or driven into those monastic retreats, which were so useful in preserving the few records of the ancient civilization that have descended to our day.

What the Huns and Goths proved to the European, the followers of the Arabian Prophet were to the Asiatic and African remains of the Roman power, and in less than a century and a half

after the *hegira*, the cities of Asia Minor and Egypt, with the relics of their venerable institutions of learning, their libraries and museums, their luxuries and artistic elegance, were desolated by the unsparing hands and bigoted intolerance of a race, as energetic as it was ignorant.

No one a witness of this terrific inundation of destroyers, would have predicted that in less than two centuries from the preaching of Mahomet, Bagdad, the city of the Caliphs, would rise on the plains of Mesopotamia, and become the great centre of medical learning; and that chemistry, the touchstone of theories, the reformer of medicine, the all-powerful agent in modern progress, should have had its birth amid the followers of the Koran! Nor would he have recognized the mountains of Helvetia, eight hundred years later, as the birth place of an obscure individual, the promptings of whose eccentric genius should lead to the downfall of the Galenical theory, and the reformation of medicine and pharmacy.

The enlightened Caliph Almanzor, about the middle of the eighth century, instituted a medical college with authorized examiners, to which was attached extensive public hospitals and practical laboratories, wherein students were furnished with means for prosecuting their pharmaceutical studies, by preparing medicines. This institution became celebrated throughout the Mahomedan world, and contributed much to the successful cultivation of pharmacy in Moorish Spain, which afterwards became famous in all Europe for its learned universities.

Geber, whose real name was Abou Moussah Giaffir el Sofi, a Sabæan of Haraun in Mesopotamia, flourished about this period of the 8th century, and so remarkable and important were his discoveries and observations, that they have earned for him the title of the Father of Chemistry. Geber was an alchemist; he was a chemist in so far as a keen pursuit of the philosopher's stone brought him in contact with various forms of matter; and it may be questioned whether, in the absence of an unquenchable thirst for the great secret of transmutation, that even he would have pursued the dubious and ill requited path of the early chemist. His discoveries are expressed in that mysterious and hyperbolical

anguage, afterwards carried to such excess by the later alchemists, and are now understood more by what he did with certain substances, than by his descriptions of the products formed. That the alchemists really were acquainted with a large number of important chemical facts cannot be doubted, but their visionary pursuit of the golden spectre, and their mysterious reserve, withheld them from realizing the glorious consequences of their discoveries, elicited at a later day; and from receiving that just meed of praise which was necessarily accorded to later and less selfish investigators. Futile as the object of their pursuit has proved, like the treasure hunters in the fable, although they found no gold, their delving in the soil of science developed its latent fertility, and in its consequent undesigned productivencss, others realized the golden harvest of future discoveries.

Whether Geber was the discoverer of most of the substances he describes, or whether antecedent but now unknown investigators led the way, we are unable to ascertain, but his writings now extant prove that he was familiar with most of the fundamental processes of chemistry, with the most important mineral acids and alkalies, and with some of the most valuable metallic oxides and salts.

After the Saracens began to cultivate the letters they had been so earnest in destroying, they sought every opportunity, in their intercourse with the Christian Powers, to get possession of the remains of classic literature, both by treaty and purchase, especially that relating to medicine. Having no model of their own, Galen became the acknowledged authority of the Arabian pharmaceutists; and Avicenna, the most erudite of their medical writers, derived his doctrines and information chiefly from the Roman school. That Saracenic pharmacy was an improvement on that of old Rome, will hardly be doubted, when it is considered the advancement chemistry had made, the new and valuable processes it had developed, and the many powerful substances it had brought into notice; yet the ancient prejudices against mineral agents were still too firmly rooted to permit its practitioners to avail themselves, to much extent, of chemical remedies.

The Arabians added many valuable articles to the materia

medica, as camphor, rhubarb, senna, manna, cassia, musk, nutmegs, mace and cloves; and were the first to introduce cane sugar, and as a consequence syrups, and conserves.

The chemists of Europe, during her emersion from the dark night of the middle ages, were few and scattered. Roger Bacon, an English Franciscan monk of the 13th century, was one of the first to flash up in the obscurity, and his discoveries so excited the prejudices of that age, as to call forth the thunders of the Vatican, and to consign him to a ten years imprisonment for dealing with Satan. Arnoldus de Villa Nova subsequently introduced *alcohol* as a solvent for medicinal substances. Basil Valentine, a German Benedictine, by his discovery of some preparations of antimony and their medicinal power, together with ammonia, and ether from alcohol, led the way to the introduction of inorganic medicines into the materia medica.

It was not, however, until Paracelsus, the admirer of Basil Valentine, in the 16th century, by his bold and persevering advocation of chemical medicines, and by his sweeping attacks on the prejudices of Galenical physicians, caused the adoption of mineral substances in practice, and directed the powers of chemistry to the improvement of the materia medica, that the pharmacy of Galen lost its pre-eminence, and his medical philosophy, so long the corner stone of physic, was shaken to its foundation, when the elemental theory of Empedocles upon which it was erected, melted away before the sunlight of analysis.

Paracelsus was a native of Zurich, and with all his originality has been styled the prince of Empirics. Armed with opium, mercury, and the antimonials, he wandered over Europe as an itinerant doctor, and gained much eclat by his practice; and when his wide reputation induced the authorities of Basle to instal him in a professorship of chemistry, the first of its kind in Europe, he exhibited his excessive vanity and contempt for the ancients, by publicly burning the works of Galen and Avicenna before his class in the lecture room. Too sottish and eccentric to continue a teacher, he resumed his itinerant habits, and while boasting of a *panacea* for all diseases, died miserably at the age of 48, at Saltzburg in Bavaria, with a bottle of his immortal elixir on his person.

From this period pharmacy made slow advances; the number of useless and absurd medicines gradually lessened. The labours of Van Helmont, a century later, helped on the reform, whilst Glauber of Amsterdam, and Lemery of Paris, striking out into unexplored paths, brought in new and valuable accessions to the existing list. The laborers now became more numerous; the period of the advent of modern chemistry was approaching; its advanced guard which had been skirmishing for centuries, was gradually nearing the citadel of truth, yet, before its attainment, the Stahlian doctrine of *Phlogiston*, like the deceptive mist-cloud of Homer's warring goddess, long kept them in abeyance, and disappointed their hopes. It was not until Black and Cavendish Priestly and Lavoisier, investigated the gases, determined the compound nature of air and water, and the true nature of combustion; it was not until Wenzel, Richter and Dalton, laid the true foundation walls of chemistry, with the laws of combination and definite proportion; on which Davy and Berzelius, Gay Lussac and Thenard, Dumas, Liebig and a host of others, erected the grand superstructure of chemical Science, that medicine and pharmacy received their fullest contributions, and were greatly overpaid for the patronage they had extended to its earliest cultivators.

I will not occupy time now by sketching the ill shapen features of the pharmacy of the 16th and 17th and part of the 18th centuries—suffice it to say, that for the most part a blind and superstitious empyricism, like the hydra of the ancients, met the inquirer in every department, and upheld in its cold embrace, and advocated by its withering breath, the grossest absurdities of the past. It was reserved for *organic analysis*, the *Hercules* of modern pharmacy, to cripple this "many headed monster of antiquity," by rending the veil which, since the world began, had obscured the proximate and ultimate constitution of organic bodies, and withheld from the physician the knowledge of what really constituted the activity of organic medicines.

The present state of pharmacy and its practitioners in the civilized countries of the world is a topic which should interest every apothecary, and is fraught with instruction for us who are in a progressive condition. In China the same causes that have influ-

enced other branches of knowledge, have controlled the progress of medicine and pharmacy. The apothecaries of to-day are little different from their ancestors a thousand years ago; and while veneration for the past retards present improvement, they revolve in the orbit marked out by their sages and are satisfied. In 1846, however, an imperial Edict was promulgated, requiring that every apothecary shall have a diploma signed by three members of the Academy of Medicine at Pekin, testifying to his capacity. The drug shops of China are neatly fitted up with boxes and jars. Their medicines are chiefly vegetable, of which ginseng, camphor, rhubarb, and liquorice are the most esteemed. The Chinese pharmacopœia has attained the voluminous size of 1300 octavo pages. Physicians' prescriptions are written of imposing dimensions in black and red characters, and empyrical preparations, with high sounding titles and infallible powers, are vended for every physical disease, and not a few moral affections.

Medicine among the Persians is much in the condition it was in the days of the Caliphs. Their notions of pharmacy are derived from Avicenna, and their remedies are chiefly Galenical preparations. A few European chemicals have penetrated by way of Russia. The native apothecaries have the credit of being a crafty and servile set, greatly addicted to poisoning. Charms, and other prophylactic remedies are largely sold, and much superstition prevails. Within a few years past several Europeans have established themselves at Isphan and other places, and are introducing officinal medicines from Europe.

Pharmacy among the Turks is more advanced than in Persia; in the larger cities and towns it is partially in the hands of French, Germans, Italians and Greeks, and many able European physicians have settled there; but by far the largest portion of the medicine venders, of the Ottomans, are mere quackish pretenders; their shops often but the stalls of a Bazaar, in the midst of which the seated occupant deals out his potions and simples. Of 1200 distinct establishments in Constantinople, but 300 deserve the name of apothecaries, and of these not more than ten or twelve have gone through any scientific preparation. There is no Turkish pharmacopœia; each dealer controls his own recipes, and varies

the strength and composition of his medicines at will. In the better shops many foreign officinals are kept, but the farther you advance to the interior, pharmacy is found to merge into the condition noticed in Persia.

The pharmacy of Germany affords a strong contrast with that of the Orientals. The apothecary is virtually an officer of the government, although he derives his emolument from his shop. Education is enforced by strict laws. The apprentice, who must possess certain knowledge of general education, and the languages, is taken in the shop for four years. He then passes to the University, and studies two or three years, a part of the time in a chemical laboratory, and, when prepared, applies for examination to the faculty authorized by government. The student is not restricted to any particular school, he can get his knowledge where and how he pleases, but the ordeal of the examiners is sufficiently strict to determine his real merit, being both practical and theoretical, and occupies portions of two days. If satisfactorily passed, the diploma conferred entitles the recipient to practice, anywhere within the authority of the Government, as soon as a vacancy occurs, or when he can meet with a party disposed to sell out. The apothecaries are apportioned among the population, each having 5,000 within the reach of his custom, and no new shops can be opened unless the increase of population demands it. The prices charged for medicines are fixed by the Government; a new list is published annually, which prevents competition at the expense of quality, and wholesale druggists are not allowed to dispense medicines.

As a set off to these privileges, the strictest attention to the quality of material and service is exacted, and an independent board of inspectors annually subject the stock of each shop to a close examination. Three unfavorable reports from the inspector, obliges an apothecary to sell out to some more worthy individual, and leave the business.

The apothecary of Germany is the fellow-laborer, not the rival, of the physician; his education is equal, in a different path, his origin as respectable, his income as great, and in general society and in the circles of the learned, he is received on an equal footing.

In no portion of the world are pharmaceutical regulations more perfect and effectually carried out than in the Scandinavian peninsula. As early as 1672 laws were enacted, and by a wise apportionment of apothecaries to population, the country has been preserved from the catalogue of evils that flow from excessive competition. The educational arrangements of Sweden are analogous to those of Germany, though stricter, two examinations being requisite. After his shop service, the student is examined on his qualifications as *assistant*, by the Apothecary's Society of Stockholm, and then only can he enter the Pharmaceutical Institution, to complete his education by three years' study, one-third of which is devoted to the laboratory. When, in his own opinion and that of his teachers, he is ready for the ordeal, the Collegium Medicum appoints a day, on which two of his professors and two apothecaries of Stockholm, conduct the examination, before a member of the College. The questions and answers are registered, and if they are finally satisfactory, the applicant is declared, after taking the prescribed oath, "Provisor and Apothecary," which qualifies him to conduct business on his own account. The inspection of shops is strict, secret medicines are unknown, and none are permitted to sell medicines but the regular apothecaries.

In Russia and Poland the pharmaceutical practice is based on an edict of the Emperor Nicholas, dated 1838. There are three grades,—Assistants, Provisors and Pharmaciens,—the last only having the right to open shops. They are accountable to Government, and are exempt from billet and military service.

For nearly two centuries, the governments of France have legislated in reference to Pharmacy. The old College of Pharmacy at Paris, commenced in 1576 by Nicholas Houell, gradually increased in importance, and survived the shock of the revolution of 1793. In 1803 Bonaparte effected the present organization of Pharmacy, by creating three special schools, located at Paris, Montpellier and Strasburg, and by authorizing three classes of persons to sell medicines. The herborists who can only sell medical plants and simple drugs; the health officers (officiers des santé) who, in sparsely populated districts, are permitted to supply medicines, but cannot keep open shops; and the pharmaciens, who have the exclusive

privilege of keeping shops for the preparation and sale of medicines. There are two grades of pharmaciens: the regularly educated graduates of the special schools, who have the right to practice in any part of France, and from whose ranks so many celebrated chemists have arisen; and the *local* pharmaciens, whose right to dispense is based on eight years service in the shop, and an examination before the local medical board of their department, beyond the limits of which they have no right to practice.

In 1840 the Special Schools of Pharmacy were made branches of the University, and the difficulties of graduating increased by the degree of Bachelor of Arts being required of the candidates, before granting an examination. The effect of this law has been to decrease the regular graduates, and greatly increase the number of local pharmaciens, who, with far less study, gain the right to practice. Means of education in Paris of the most extensive and liberal character are gratuitously provided by the government, yet the graduating fees are very considerable. As a whole, the condition of our art, in the French nation, is less perfect than in Germany and Sweden, because the laws are less stringent; yet no country can produce a brighter array of accomplished pharmaceutists.

The flourishing condition of pharmacy in ancient Spain during the era of Imperial Rome, was reduced under Gothic rule to a degraded quackery, to be again elevated during Saracenic dominion to a degree of advancement beyond that of any country of Europe. On the expulsion of the Moors, their Christian successors continued to foster our art, until the reign of Philip 2d, when it gradually declined. In 1801 Charles IV. established a Royal College of Pharmacy at Madrid, and instituted the degree of Doctor in Pharmacy. Ferdinand VII. in 1815 founded three other colleges, at Barcelona, Seville, and Valencia. In 1835 a reorganization took place, resulting in the suspension of the two last named schools, and granting new powers to the institutions of Madrid and Barcelona; the former receiving the sole right to confer the pharmaceutical Doctorate. There are two grades of Apothecaries in Spain. The *Licentiates* attain their diploma on passing a successful examination, after five years study in the School of Phar-

macy, followed by two years service in a dispensing establishment. They have the right to prepare and sell medicines any where within the dominion of Spain. The *Doctorate* is attained by two additional years of study in the highest branches of science accessory to pharmacy, and renders the possessor eligible as a candidate for the College professorships. The many valuable accessions to the Materia Medica which the Spanish pioneer adventurers in the New World sent back to the mother country, must be attributed in part to the advanced state of our art in the Peninsula at that epoch.

The original pharmaceutists of Mexico, and the Spanish South American Colonies, were derived from Spain, but since the independence of those countries, pharmacy has been open to the adventurers of other nations, and, if we except perhaps Mexico to a certain extent, with little else than open competition to regulate their practice. In the city of Mexico, a considerable degree of strictness is enforced, the apothecaries being required to compound their own medicines, to avoid prescribing, and to refuse all prescriptions not signed by a regular physician.

In England, Pharmacy is chiefly in the hands of two classes of persons: the Apothecaries, who also practice medicine to a certain extent gratuitously, and who were originally physicians' assistants, in the 16th century, and the dispensing Chemists, who originated as a class about the close of the 17th century, as occupants of the dispensaries, and who are now the proper pharmaceutists of England. The Apothecaries, who were incorporated into a Society in 1617, and enjoy many privileges, so irritated the *dispensing chemists* by their jealous interference, as to induce the latter in 1841 to unite their interests, and establish the Pharmaceutical Society of Great Britain. This institution has for ten years past conducted a school of Pharmacy with four professorships, and a practical laboratory, besides issuing a Monthly Journal, which is now the most extensive and interesting organ of Pharmacy published in the English language. As yet the Society has been unable to obtain a grant of Collegiate powers, and confers no degree or title on its successful pupils. When this shall be obtained, and the dispensing of medicines confined to the

regularly qualified, English pharmacy, as a whole, may become equal to that of Germany; but now, general shopkeepers and grocers, itinerant quacks and pseudo-chemists, share the business with the dispensers and apothecaries, and vend without check the veriest trash, under the names of regular and patent medicines.

With the growth of the British American colonies, many institutions of the mother country were transplanted, and incorporated, and among these the medical service. The regular physicians prior to the Revolution, and many of them long after, obtained their degrees in the universities of Britain. The ancient custom of supplying their own medicines was general among American practitioners until about forty years ago, even in large cities, as it yet exists in the rural districts and villages. The institution of the medical college, now the University of Pennsylvania, about the year 1768, by Doctors Shippen, Morgan, Kuhn, Bond and Rush gave an impetus to medical interests on this side of the Atlantic, which has gathered power with progress to the present time. Dr. Morgan should be remembered by the apothecary of Philadelphia as the first physician who introduced the practice of sending to the shop for prescriptions, and other medicines for the sick, but many years elapsed before the custom became general.

Previous to 1820 no national codex existed, the pharmacopœias and dispensatories of Great Britain, and private receipt books, were the irregular guides to the physician in prescribing and the apothecary in compounding. In that year a national convention of physicians at Washington, authorized the publication of the first edition of the United States Pharmacopœia, and provided for its revision every ten years, which has been regularly effected. In the following year, 1821, the apothecaries of Philadelphia, stimulated by certain movements on the part of the University in reference to the education of apothecaries, determined to provide for themselves, and organized the Institution under whose auspices we are gathered this evening. The School of Pharmacy at that time commenced has continued its sessions uninterruptedly to the present, with a gradually increasing class, and a widening sphere of usefulness, through its graduates scattered over the country, who have contributed largely to reform the practice of their art in various localities

In 1829, the Journal of the Philadelphia College of Pharmacy was commenced, with the design of advocating the interests of pharmacy in the United States; and to afford a medium through which the observations of American pharmaceutists might become known. This work for the last eighteen years has been published under the more extended title of the "American Journal of Pharmacy," and yet continues its useful influence.

In 1829 the apothecaries and druggists of New York, animated by a like zeal, founded the "College of Pharmacy of the City of New York," and established a school in connection with it, which continues in operation. With the beginning of the present year the "New York Journal of Pharmacy" dates its birth, and bids fair to pursue a course as honorable to its conductors, as useful to the profession.

In 1844 the "Maryland College of Pharmacy," at Baltimore, was instituted; in 1849 that of Cincinnati; and last year the apothecaries of Boston united their interests, and commenced the "Massachusetts College of Pharmacy" in that city.

Under the influence of these Institutions, and private exertions, pharmacy in the United States has made, and is making very considerable progress, a class of practitioners is rapidly coming into existence, many of whom, in regard to the cardinal objects of their profession are equal to those of any country; although in general not so highly educated in the accessory sciences. But when the aggregate number of all grades, of those who prepare and sell medicines, is considered, by far the larger portion are illy fitted for the duty, and of these no small number are absolutely disqualified by ignorance of many the most obvious requirements of the business they profess to follow. Besides these irregular *regulars*, a host of quacks and pretenders, composed of renegade physicians and apothecaries, unsuccessful merchants and mechanics, infest every community within our borders, proclaim the merits of their injurious, disgusting and often useless preparations, and through the columns of a prostituted press, lie them into notice with a systematic perseverance worthy of a better cause. Every avenue to public notice is seized upon, from placards posted on the streets or scattered in public vehicles, to the covers of pamphlets and fashionable periodicals.

These appeals assume every form the imagination can fancy;—to attract the learned, the garb of science is chosen; to satisfy the devout, clerical testimony is elicited; to arouse the dying, miracles are promised; to encourage the incurable, lying is adopted; to secure the mean, the physician's fee is alluded to; and to meet the weak and the vain, the autographs of presidents, and generals, and judges, and Sandwich Island kings are produced, to place the question of efficacy beyond a doubt. Alas for human nature!—Let us not point toward the past, with the finger of scorn, at the temple of Epidaurus; nor smile at the credulity of its votaries!—the goddess of empypricism has a shrine within our borders, on whose many altars oblations of wealth, and health, and life are freely offered, with an infatuation only equalled by Hindoo devotion.

As yet no special legislation (with two or three unsuccessful exceptions) has been effected within the United States to improve the condition of Pharmacy, and to protect the interests of the public by the encouragement of pharmaceutical education. We have seen what the monarchical governments of Europe have done, and how successful their measures have proved. How is it, in this country, where the people professedly rule, and where legislation is so fashionable, that nothing has been accomplished? The power of public opinion is, with us, the only force that can be enlisted with hope of success in effecting many reforms that lie within the legitimate limits of legislative action. Each individual as one of the sovereign people, feels his right must be respected; the quack, and the pretender assume this ground, and are ever ready to oppose measures for the public good that conflict with their pecuniary interest, by raising the cry of monopoly, by proclaiming the doctrine of non-interference with competition, and by appealing to the political sensibilities of the legislators through their function as *voters* of the commonwealth.

If one half the power conceded to the Board of Health, by universal consent, and manifested through quarantine and other regulations, was invested in a properly qualified pharmaceutico-medical board, authorized to carry out the provisions of a wholesome LAW, which law should define the qualifications of those to

whom the practice of Pharmacy is entrusted, should require an annual inspection of the stock of Apothecaries in the manner of the Germans, and should check the torrent of quacking, by requiring every inventor of a secret remedy to take out a patent for his nostrum, and deposit a certified copy of the recipe used in making it, among the official records, so that all may know what they are served with under the name of infallible specifics—I say if this was accomplished, the Pharmaceutists in our country would soon rise in character and education, and the stigma of a base and degrading charlatanism be lessened, if not removed.

Gentlemen, a convention of Pharmaceutists will meet in this city in October next, from all sections of the Union, at the call of a convention held in New York last year, to consider deliberately the whole question of American Pharmacy, to advise a general organization of Apothecaries, and to increase the educational advantages already existing. The disinterested character of this movement should win for it the favorable consideration and support of every true Apothecary, that its influence may be enlarged, and its ability to subserve the important objects in view enhanced and extended.

And now, Gentlemen, in concluding these already too lengthened remarks, let me for a moment recall your attention to yourselves and your teachers. What shall I say to you, before we part, that has not already been spoken? To assure you that we appreciate your position, as in the morn of your professional life; —to aver that we feel an interested pride in you, as the honored graduates of this Institution;—to say that we will continue to manifest a sympathetic regard for your future welfare and success, as the worthy children of a respected Alma Mater—is unnecessary: The parent loves her offspring—she cannot help it. But by the regard you feel towards her, accept her parting counsel;—Be true to yourselves as men and pharmaceutists, come what will;—hold firmly to the right, whether fortune smiles on your endeavors, and prosperity heaps around you the material comforts and luxuries of life; or whether her frowns render years of unavoidable toil and grinding economy your lot. Re-

member that, in this world, all spheres of life must be filled, all degrees of competence exist, and as apothecaries you will find no exceptional law ;—but also remember, that far more precious than material wealth and pecuniary power, and far more important than the discomforts or even sufferings caused by a limited income, is that serenity of mind, unmoved by prosperity or calamity, which is based on a consciousness of deserving success, by a strict performance of duty with untarnished integrity.

GRADUATES

OF THE

PHILADELPHIA COLLEGE OF PHARMACY,

MARCH, 1852.

At a Public Commencement, held on the 18th of March, 1852, the Degree of Graduate in Pharmacy was conferred—on behalf of the Board of Trustees—by THOMAS P. JAMES, Esq., on the following gentlemen:

Name.		*Subject of Thesis.*
T. ROBERTS BAKER,	Virginia,	Secale Cornutum.
DAVID F. BURTON,	Delaware,	Stillingia Sylvatica.
CIPRIANO CANEDO,	Mexico,	Imperatoria Ostruthium.
JOHN L. DAVIS,	Philadelphia,	Chimaphila.
GEORGE M. GORMLY,	Virginia,	Progress of Chemistry.
SAMUEL D. HENDEL,	Pennsylvania,	Geranium Maculatum.
WILLIAM HEYSER,	Pennsylvania,	Cornus Florida.
JOHN HOLDEN,	Pennsylvania,	Arctostaphylos Uva Ursi.
ALFRED JONES,	Philadelphia,	Narcotic Plants of U. S.
J. H. M. MORRIS,	Kentucky,	Frasera.
RICHARD PELTZ,	Philadelphia,	Syrup of Assafetida.
JOSEPH S. PEROT,	Philadelphia,	Cortex Pruni Virginianæ.
BRADFORD RITTER,	Philadelphia,	Iron.
MATHEW M. SELFRIDGE,	Pennsylvania,	Kalmia Latifolia.